DP-II Series

LOUDSPEAKER MANAGEMENT

User Manual

Introduction

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacture's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Use only attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lighting storms or when unused for long periods of time.
14. Refer all servicing to qualified service personal. Sevicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. The apparatus shall be connected to a MAINS socket outlet with a protective earthing connection.
16. Where the MAINS plug or an appliance coupler is used as the disconnect device, the disconnect device shall remain readily operable.

The symbol, wherever is appears, alerts you to the presense of uninsulated dangerous voltage inside the enclosure-voltage that may be sufficient to constitute a risk of shock.

The symbol, wherever is appears, alerts you to important operating and maintenance instructions in the accompanying literature. Please read the manual.
To reduce the risk of electric shock, do not remove the top cover (or the rear section). No user serviceable parts inside. Refer servicing to qualified personnel.
To reduce the risk of fire to electric shock, do not expose this appliance to rain and moisture. The apparatus shall not be exposed to dripping or splashing liquids and no objects filled with liquids, such as vases, shall be placed on the apparatus.
These service instructions are for use by qualified service personal only.
To reduce the risk of electric shock do not perform any servicing other than that contained in the operation instructions. Repairs have to be performed by qualified service personal.

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
DO NOT EXPOSE TO RAIN, MOISTURE,
DRIPPING OR SPLASHING

Introduction

The DP-II Series are powerful DSP based loudspeaker processors, ideally suited for install application, where they combine the functions of a multitude of conventional products in a compact 1U unit with extensive remote control capabilities. To achieve this, the DP Series devices have two inputs, three inputs, and four inputs and up to eight outputs.

Base crossover modes:

6 Outputs have 2x2 way, 2x3 way, 4+2 way, 5+1 way and 6 way.

4 Outputs have 2x2 way, 3+1 way, 4 way and 2 MonoSub.

Units also offer "Source" for free assign signal, which allows completely flexible routing of any output from any combination of inputs.

Each input has a gain control, multi-type filters. Filter types included parametric equalisation, high & low shelving.

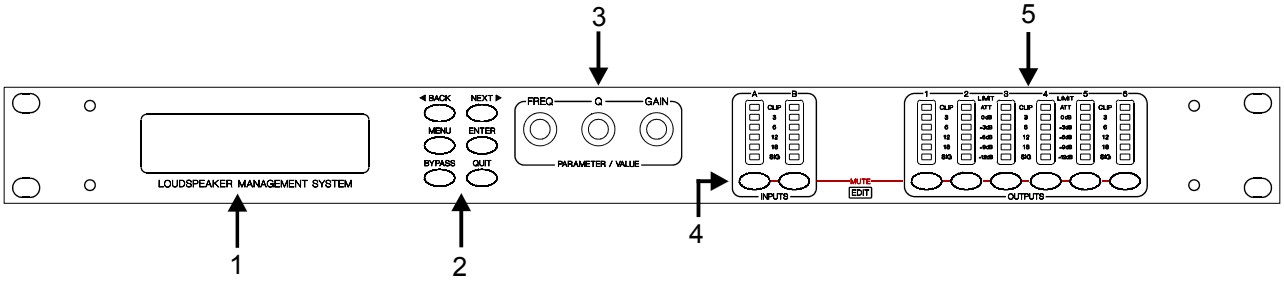
Each output has a gain control, variable delay line, highpass and lowpass crossover filters, seven band multi-type filters, polarity, input signal source, a limiter. The crossover filters offer slopes of up to 48dB/Octave.

Security lock-out is avaiable for each parts.

Supply external device remote controls.

Remote port is RS232.

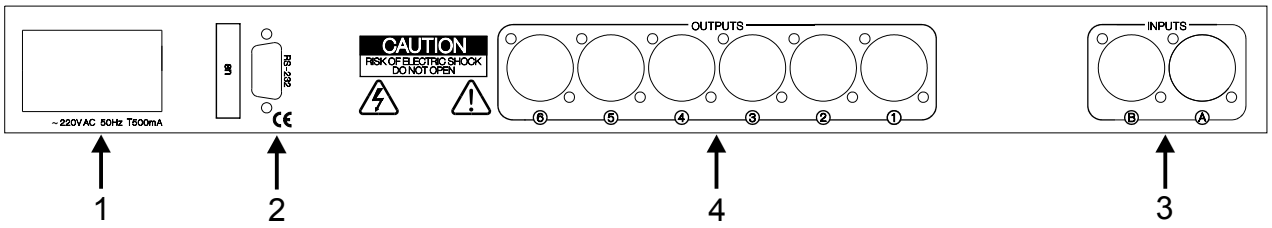
Front Panel



1. LCD Sreeen: Show, the name of last recalled memory on the bottom line of the screen, and current device model name on the top line. Also used to show all parameters as they are edited, and all menu selections.

2. BACK/ NEXT: Moves backwards or forward through list of parameters.
   MENU: Activates the main menu.
   BYPASS: Bypass filter.
   QUIT: Quit key.
   ENTER: Enter key.
3. Rotary Encoders: Three velocity encoders adjust parameters.
4. MUTE: These buttons illuminate when pressed and mute audio for that channel.
   (Press and Hold 3 seconds) Access current channel parameters.
5. Meters: Input and Output meters show dB from clipping point. Red CLIP LED show signal overflow, Yellow LED show signal near -3dB.

Rear Panel



1. Power Switch: turns the device's mains supply off and on.
2. RS232: RS232 standard via a 9 pin D-type connector, for connection to PC.
3. Audio Inputs: 3 pin XLR sockets are provided for each channel. All are fully balanced, pin 2 hot, 3 cold, 1 screen.
4. Audio Outputs: 3 pin XLR sockets are provided for each channel. All are fully balanced, pin 2 hot, 3 cold, 1 screen.

Diagram of input channels

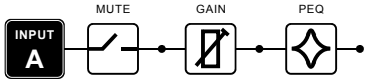
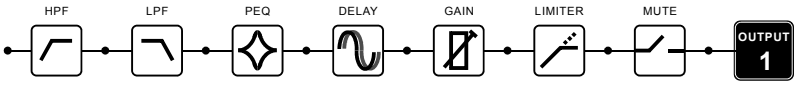
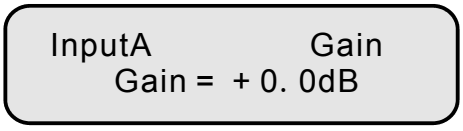


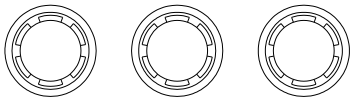
Diagram of output channels



Input Gain

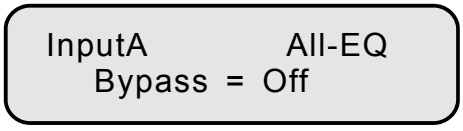
The range of the control over the input gain is -40dB to +6dB in 0.1dB steps.



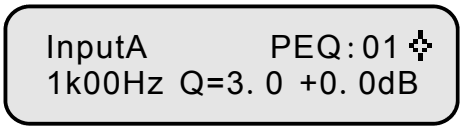


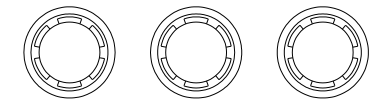
Input Parametric EQ

Pressing BYPASS will bypass the All bands EQ.

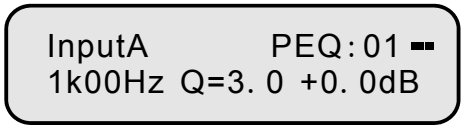


The range of frequency is 20Hz to 20kHz in 1/36 Octave. The range of Q is 0.4 to 128. The range of gain is -30dB to +15dB in 0.1dB steps.



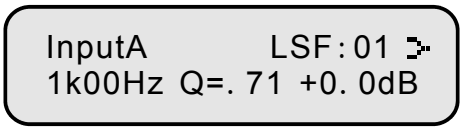


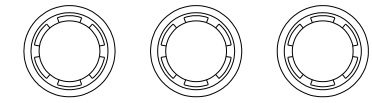
Pressing BYPASS will bypass the current band EQ.



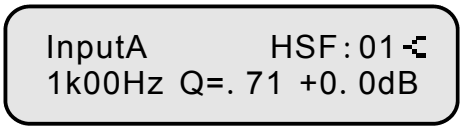
While filter was in BYPASS ON, Changing the filter type is achieved by pressing ENTER.

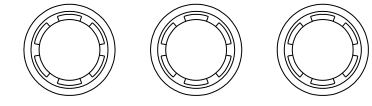
(LoShelf)





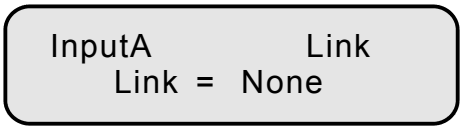
(HiShelf)

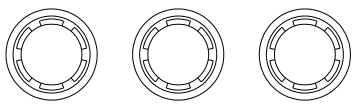




Input Link

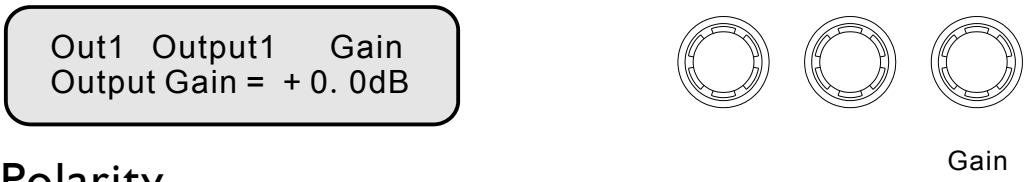
Set link value for channel, while modify parameters, the channel of have same link value will modify together.





Output Gain

The range of the control over the input gain is -40dB to + 15dB in 0.1dB steps.

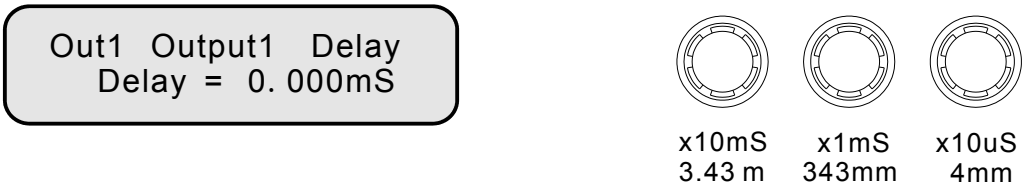


Output Polarity

The polarity (or phase) of each output may be switched individually.

Output Delay

The maximum avaiable delay depend on different devices.

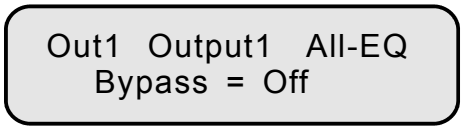


Output Highpass/Lowpass Filter

The highpass/lowpass filter on each output has a frequency range of 20Hz to 20kHz in 1/36 Octave steps.
Crossover slope can be 6dB, 12dB, 18dB, 24dB, 36dB and 48dB/Octave.
Filter type can be Butterworth, Linkwitz-Riley, Bessel.

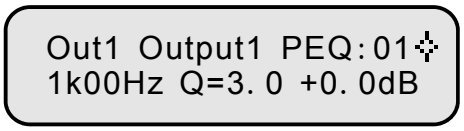
Output Parametric EQ

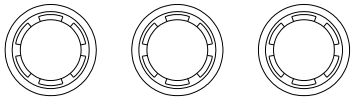
Pressing BYPASS will bypass the All bands EQ.



Bypass

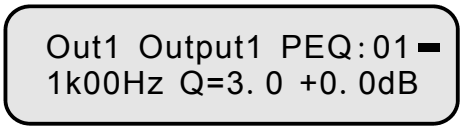
The range of frequency is 20Hz to 20kHz in 1/36 Octave. The range of Q is 0.4 to 128. The range of gain is -30dB to +15dB in 0.1dB steps.





Frequency 'Q' Gain

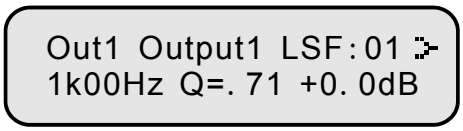
Pressing BYPASS will bypass the current band EQ.

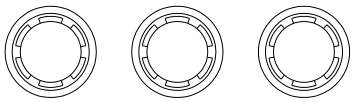


Bypass

While filter was in BYPASS ON, Changing the filter type is achieved by pressing ENTER.

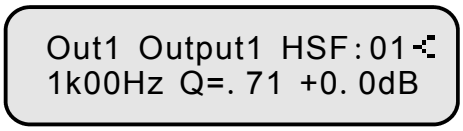
(LoShelf)

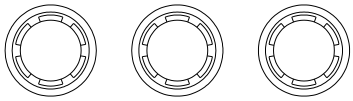




Frequency 'Q' Gain

(HiShelf)

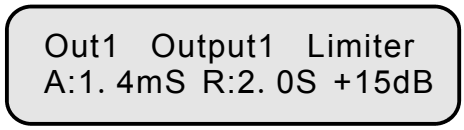


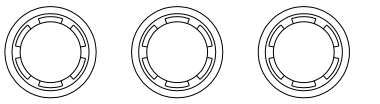


Frequency 'Q' Gain

Output Limiter

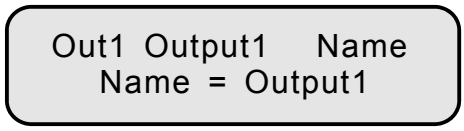
The limiter on each output has adjustable attack time, release time and threshold.
The range of attack time 0.3 to 90mS, the range of release time 0.1 to 2.0 second, the range of threshold -10dB to +15dB in 0.1dB steps.

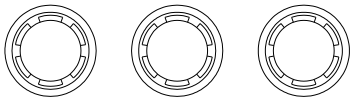




Output Channel Name

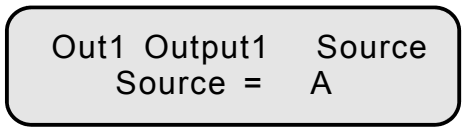
For edit channel name by pressing ENTER. Cursor will blink on first character position.
Turn rotary encoder and modify character, move cursor position by pressing BACK or NEXT.
Pressing ENTER again for confirm and store channel name.

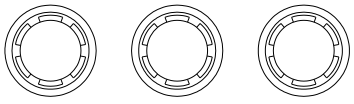




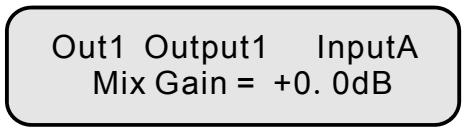
Source

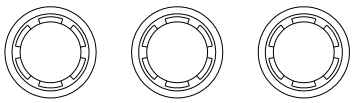
The source on each output, can assign signal rounting from input channel, create free Xover combination.





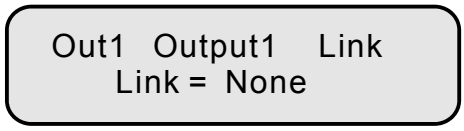
Pressing ENTER will switch each input channel mix gain.

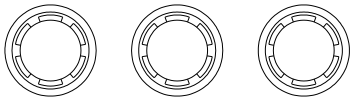




Output Link

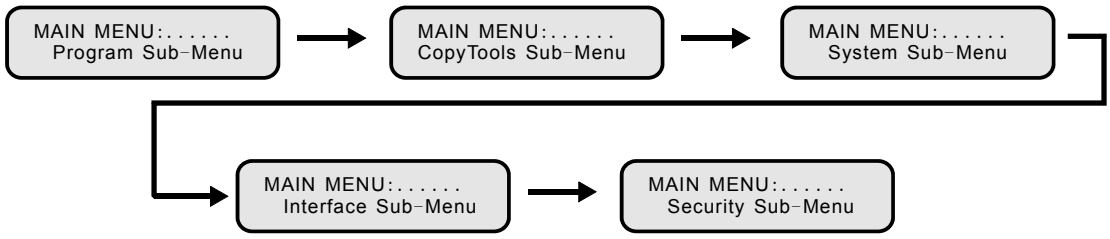
Set link value for channel, while modify parameters, the channel of have same link value will modify together.





Menu System

Pressing MENU will enter menu system. Pressing ENTER will enter sub-menu.



Program Sub-menu

Load Factory Program.
Load User Program.
Design a Xover.
Save User Program.
Delete User Program.

PROGRAM MENU:...
Load User Program

Pressing ENTER will enter Load User Program sub-menu.

Load User Program
01: 2x3 Way Xover

Turn rotary encoder to change program index,
Pressing ENTER

[ENTER] for Recall.
01: 2x3 Way Xover

Pressing ENTER for confirm and load program.

Loading New Program
01: 2x3 Way Xover

PROGRAM MENU:...
Design a Xover

Pressing ENTER will enter Design a Xover sub-menu.

Design a Xover
Type: 2x2 WAY XOVER

Turn rotary encoder to change Xover mode,
Pressing ENTER

New Xover
[ENTER] to Confirm

Pressing ENTER for confirm and change Xover mode.

About Xover mode details, see Appendix I.

PROGRAM MENU:. . .
Save User Program

Pressing ENTER will enter Save User Program sub-menu.

Save User Program
01: 2x3 Way Xover ?

Turn rotary encoder to change program index,
Pressing ENTER.

[ENTER] to Overwrite
01: 2x3 Way Xover ?

Pressing ENTER for confirm and overwrite program.
Pressing QUIT for exit.

Set Program Name
01: 2x3 Way Xover ?

Program name length is 16 character.
Turn rotary encoder and modify character, move cursor position by pressing BACK or NEXT.
Pressing ENTER again for confirm and store program name.
Pressing QUIT for exit.

[ENTER] to Save
01: 2x3 Way Xover ?

Pressing ENTER for confirm and Save program.

Saving to Memory
01: 2x3 Way Xover ?

PROGRAM MENU:. . .
Delete User Program

Pressing ENTER will enter Delete User Program sub-menu.

Delete User Program
01: 2x3 Way Xover

Turn rotary encoder to change program index,
Pressing ENTER.

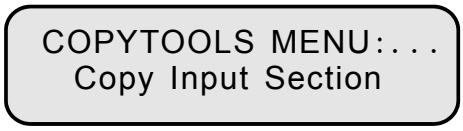
[ENTER] to Delete.
01: 2x3 Way Xover

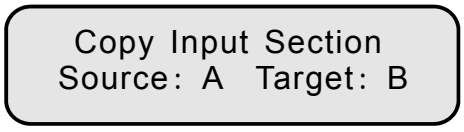
Pressing ENTER for confirm and delete program.

Deleting Memory. . .
01: 2x3 Way Xover

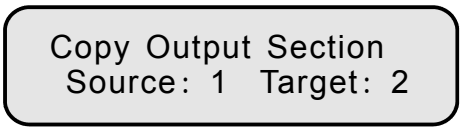
CopyTools Sub-menu

Copy Input Section
Copy Output Section





On Copy Input Section screen, Turn rotary "FREQ"encoder change source channel,
Turn rotary "Q" encoder change target channel.
Pressing ENTER to confirm and copy intput channel parameters.

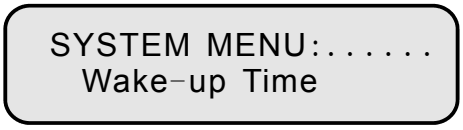


On Copy Output Section screen, Turn rotary "FREQ"encoder change source channel,
Turn rotary "Q" encoder changetarget channel.
Pressing ENTER to confirm and copy output channel parameters.

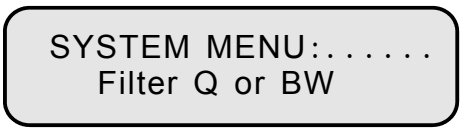
System Sub-menu

Turn rotary encoder to change LCD contrast,
Pressing ENTER to confirm and save.

Turn rotary encoder to change LED brightness,
Pressing ENTER to confirm and save.



Device startup wake up time.
Mute Hold, set to keep mutes on when powered up.
0 secs.....60 secs, set wait time before the audio fades in.
Turn rotary encoder to change parameter,
Pressing ENTER to confirm and save.



Select filter Q or Bandwidth display unit.
Turn rotary encoder to change parameter,
Pressing ENTER to confirm and save.

SYSTEM MENU:.....
DelayTime/Distance

Select delay time or distance.
Turn rotary encoder to change parameter,
Pressing ENTER to confirm and save.

SYSTEM MENU:.....
Output LED Meter

Select output meter indicate style.
output Level or attenute on limiter.
Turn rotary encoder to change parameter,
Pressing ENTER to confirm and save.

SYSTEM MENU:.....
Load Program Option

Select load program option.
AutoMute: Force all output mute on after loading program.
LoadMute: Load output MUTE status in program stored.
Turn rotary encoder to change parameter,
Pressing ENTER to confirm and save.

SYSTEM MENU:.....
Device Name Title

Change device title name on LCD screen top line.
Pressing ENTER to edit.

[ENTER] to Editing
Tit: Speaker Processor

Device name length is 16 character.
Turn encoder and modify character.
move cursor position by pressing BACK or NEXT.

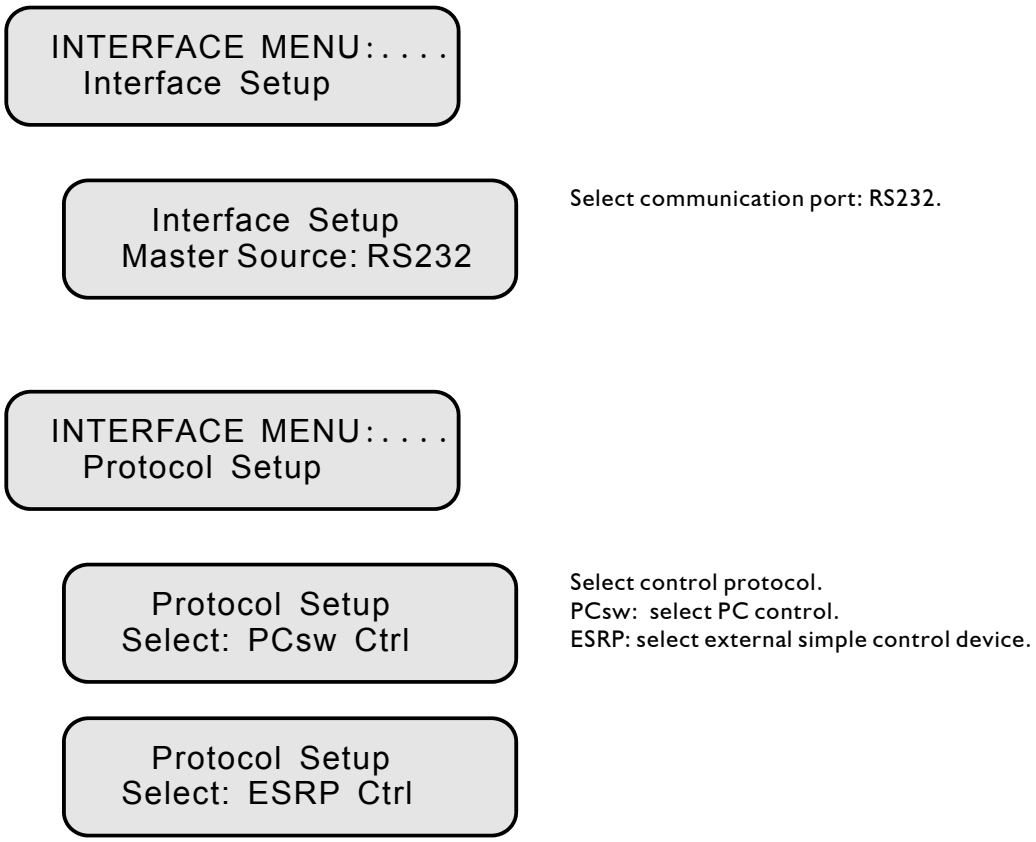
Set Device NameTitle
Tit: Speaker Processor

Pressing ENTER for confirm.
Pressing QUIT for exit.

[ENTER] to Store
Tit: Speaker Processor

Pressing ENTER again for confirm and store.

Interface Sub-menu



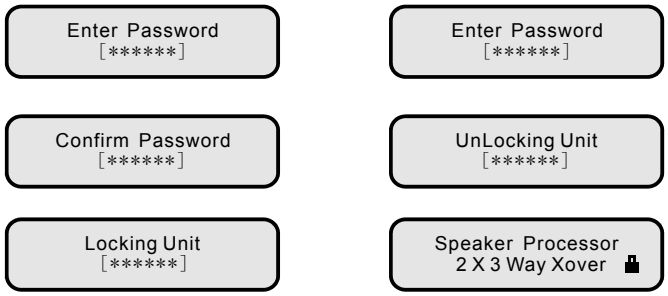
Security Sub-menu

Pressing ENTER will enter Security sub-menu.

Lock status setting:
No Lock: without lock out.
Control: cannot change.
Display: cannot view.

	Xover Only	Xover + Trim	Xover + Trim + Mute	Changes Only	Changes + View	Changes + Mutes	EVERYTHING
Input Gain	No Lock	No Lock	No Lock	Control	Display	Control	Display
Input PEQs	No Lock	No Lock	No Lock	Control	Display	Control	Display
Input Links	No Lock	No Lock	No Lock	Control	Display	Control	Display
Output Gain	No Lock	Display	Display	Control	Display	Control	Display
Output Delay	Display	Display	Display	Control	Display	Control	Display
Output PEQs	Display	Display	Display	Control	Display	Control	Display
HPFs & LPFs	Display	Display	Display	Control	Display	Control	Display
Output Links	Display	Display	Display	Control	Display	Control	Display
Output Phase	Display	Display	Display	Control	Display	Control	Display
Limiters	Display	Display	Display	Control	Display	Control	Display
Matrix Gains	Display	Display	Display	Control	Display	Control	Display
Input Mutes	No Lock	No Lock	No Lock	No Lock	No Lock	Control	Control
Output Mutes	No Lock	No Lock	Control	No Lock	No Lock	Control	Control
Output Name	Control	Control	Control	Control	Control	Control	Control
Menu System	No Lock	No Lock	No Lock	No Lock	No Lock	No Lock	Control
Memory Store	No Lock	No Lock	No Lock	No Lock	No Lock	No Lock	Control
Memory Load	No Lock	No Lock	No Lock	No Lock	No Lock	No Lock	Control
File Operation	No Lock	No Lock	No Lock	No Lock	No Lock	No Lock	Control

In “User Specific” setting, you can free set up lock status depend on each function part.



Pressing ENTER will enter password.
Turn rotary encoder and modify character, move cursor position by pressing BACK or NEXT.
Pressing ENTER for enter password again.
while twice time password match, system will lock unit.

Specifications

Inputs: 2 electronically balanced.
Impedance: > 10k ohms.
CMRR: > 75dB 50Hz ~ 10kHz.

Outputs: 4/6 electronically balanced.
Source Imp: < 60ohms
Min. Load: 600ohm
Max. Level: +15dBm

Digital Audio Sample Rate: 96kHz
Frequency Response: +/- 0.5dB, 20Hz ~ 20kHz
Distortion: < 0.02% @1kHz, +15dBm
ADC Dynamic Range: > 110dB, 20Hz ~ 20kHz (A-Weight)
DAC Dynamic Range: > 110dB, 20Hz ~ 20kHz (A-Weight)
Propagation Delay: 0.21mS (DP240-II / DP260-II)

Delay: 10mS(Output)
Min Step Size: 0.010mS(4mm)
Input Gain: -40dB to +6dB in 0.1dB steps
Output Gain: -40dB to +15dB in 0.1dB steps

Multi-Type Filters
10 per Input, 7 per Output.
Freq. Range: 20Hz ~ 20kHz, 1/36 Octave steps.
Filter Q/BW: 0.4 to 128.
Filter Type: parametric equaliser
HiShelf, LoShelf

High and Lowpass Filters
Freq. Range: 20Hz ~ 20kHz, 1/36 Octave steps.
Slope: 6/12/18/24/36/48 dB/Octave.
Type: Butterworth, Linkwitz-Riley, Bessel.

Limiters
Threshold: -10 ~ +15dB, 1dB steps.
Attack time: 0.3 ~ 90mS.
Release time: 0.1 ~ 2.0 second.

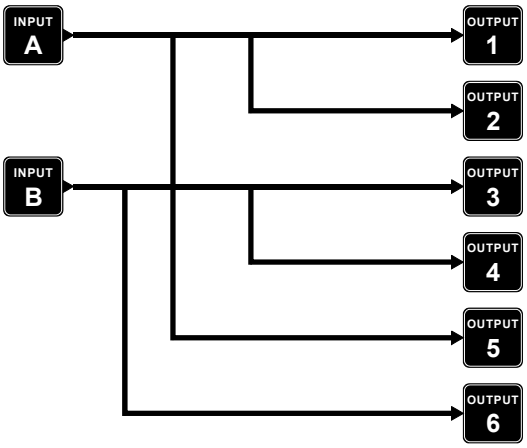
Display: 2x20 Character LCD

Connectors
Inputs: 3 pin female XLR
Output: 3 pin male XLR
RS232: 9 pin DEE connector
Power: 3 pin IEC

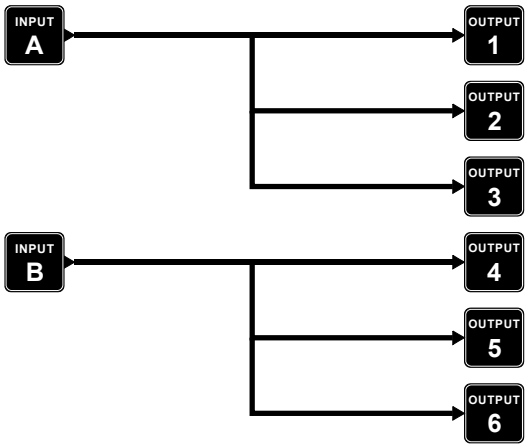
Power Voltage: ~220V @50/60Hz
Power Consumption: < 15 watts
Weight: 2.7kg. Net (4.0kg. Shipping)
Size: 1.75"(1U) x 19" x 7.7" (44 x 482 x 197 mm)

Appendix I - Crossover Configurations

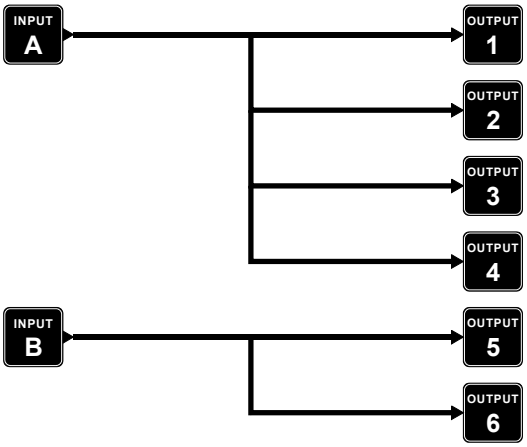
2x2 Way（DP260-II）



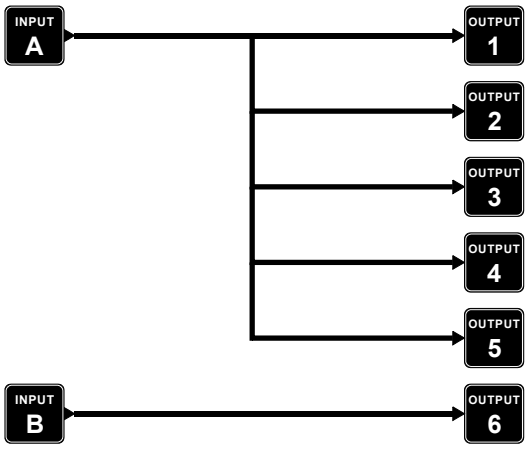
2x3 Way（DP260-II）



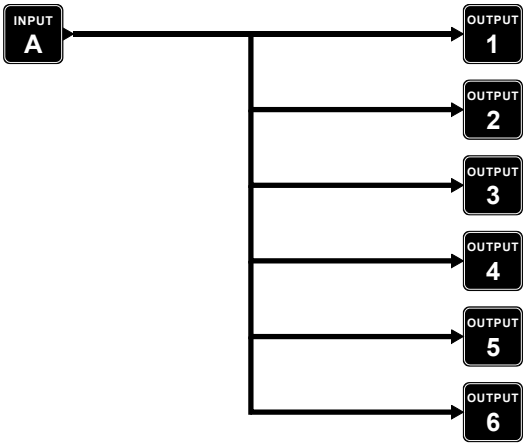
4+2 Way（DP260-II）



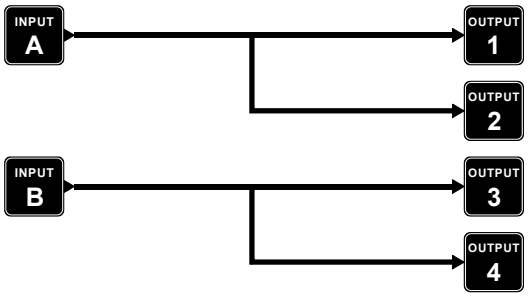
5+1 Way（DP260-II）



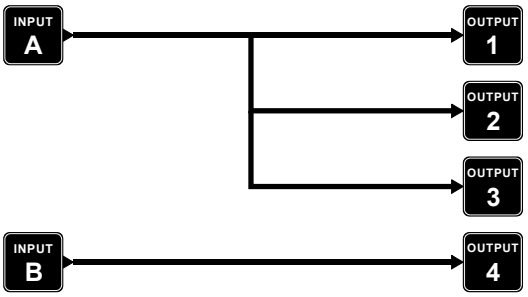
6 Way（DP260-II）



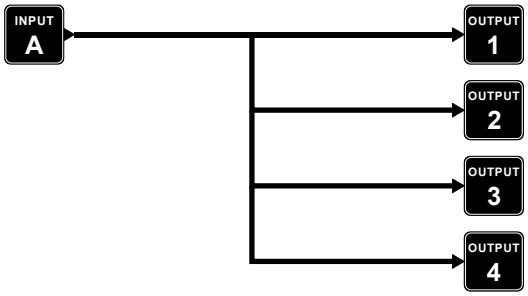
2x2 Way（DP240-II）



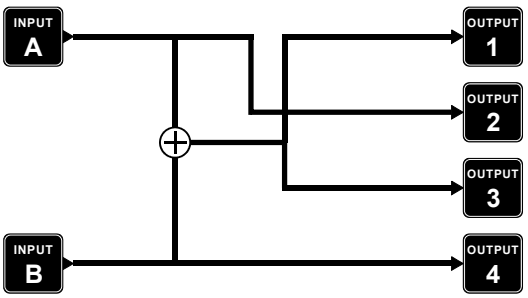
3+1 Way（DP240-II）



4 Way（DP240-II）



2 Mono Sub（DP240-II）



Appendix II - Different Device Comparision

	Model	DP260-II	DP240-II
INPUT	Channel	2	
	Delay	—	
	Filter	10	
OUTPUT	Channel	6	4
	Filter	7	
	Delay	10mS	